



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,815	03/29/2001	Hideyuki Torii	019952-156	1451

7590

03/17/2006

Platon N. Mandros  
BURNS, DOANE, SWECKER & MATHIS, L.L.P.  
P.O. Box 1404  
Alexandria, VA 22313-1404

EXAMINER

JONES, HUGH M

ART UNIT

PAPER NUMBER

2128

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/819,815

Applicant(s)

TORII, HIDEYUKI

Examiner

Hugh Jones

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Claims 1-16 of U. S. Application 09/819,815, filed 03/29/2001, are pending.

#### **Information Disclosure Statement**

2. It is noted that an IDS has not been provided to the office. Please supply user's manuals for CreditBrowser for all versions prior till 3/29/2000. Furthermore, please provide user's manuals or equivalent documentation for NtRand including versions 1.00, 1.11, 1.17. See pages 6-7 of NtRand: Numerical Technologies Random Generator for Excel.
3. A 1.105 requirement for information is not being made at this time.

#### **Claim Rejections - 35 USC § 101**

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. ***Claims 1-16 are rejected under 35 U.S.C. 101 because the claimed invention is drawn to non-statutory subject matter.***

6. It is noted that:

- Claims 1-6 merely recite an algorithm without a concrete, useful and tangible result;
- Claims 7- 9 do not recite a concrete, useful and tangible result;
- Claims 10-13 recite a disembodied program and do not recite a concrete, useful and tangible result;

Art Unit: 2128

- Claims 14-16: merely an algorithm on a computer without a concrete, useful and tangible result.

7. ***Claims 1-16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Applicant's have merely claimed a manipulation of abstract ideas.***

8. ***The Examiner submits that the claims as written, are merely drawn to an abstract algorithm for creating subsets of data.***

9. An invention which is eligible for patenting under 35 U.S.C. 101 is in the useful arts when it is a machine, manufacture, process or composition of matter, which produces a concrete, tangible, and useful result. ***The fundamental test for patent eligibility is thus to determine whether the claimed invention produces a “useful, concrete and tangible result.”*** The test for practical application as applied by the examiner involves the determination of the following factors:

(1) Useful - The Supreme Court in *Diamond v. Diehr* requires that the examiner look at the claimed invention as a whole and compare any asserted utility with the claimed invention to determine whether the asserted utility is accomplished. Applying utility case law the examiner will note that:

(a) the utility need not be expressly recited in the claims, rather it may be inferred.

(b) if the utility is not asserted in the written description, then it must be well established.

Art Unit: 2128

10. Furthermore, although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

(2) Tangible - Applying *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994), the examiner will determine whether there is simply a mathematical construct claimed, such as a disembodied data structure and method of making it. If so, the claim involves no more than a manipulation of an abstract idea and therefore, is nonstatutory under 35 U.S.C. 101. In *Warmerdam* the abstract idea of a data structure became capable of producing a useful result when it was fixed in a tangible medium which enabled its functionality to be realized.

(3) Concrete - Another consideration is whether the invention produces a concrete result. Usually, this question arises when a result cannot be assured. An appropriate rejection under 35 U.S.C. 101 should be accompanied by a lack of enablement rejection, because the invention cannot operate as intended without undue experimentation.

11. The Examiner respectfully submits, under current PTO practice, that the claimed invention does not recite a *concrete, useful and tangible result*. The claims appear to be reciting abstract algorithmic steps.

12. In practical terms, claims define nonstatutory processes if they consist solely of mathematical operations without some claimed practical application (i.e., executing a "mathematical algorithm"); or simply manipulate abstract ideas, e.g., a bid (*Schrader*, 22 F.3d at 293-94, 30 USPQ2d at 1458-59) or a bubble hierarchy (*Warmerdam*, 33 F.3d at

Art Unit: 2128

1360, 31 USPQ2d at 1759), without some claimed practical application. Cf. *Alappat*, 33 F.3d at 1543 n.19, 31 USPQ2d at 1556 n.19 in which the Federal Circuit recognized the confusion: The Supreme Court has not been clear . . . as to whether such subject matter is excluded from the scope of 101 because it represents laws of nature, natural phenomena, or abstract ideas. See *Diehr*, 450 U.S. at 186 (viewed mathematical algorithm as a law of nature); *Gottschalk v. Benson*, 409 U.S. 63, 71-72 (1972) (treated mathematical algorithm as an "idea"). The Supreme Court also has not been clear as to exactly what kind of mathematical subject matter may not be patented. The Supreme Court has used, among others, the terms "mathematical algorithm," "mathematical formula," and "mathematical equation" to describe types of mathematical subject matter not entitled to patent protection standing alone. The Supreme Court has not set forth, however, any consistent or clear explanation of what it intended by such terms or how these terms are related, if at all.

13. A claim that requires one or more acts to be performed defines a process. However, not all processes are statutory under 35 U.S.C. 101. *Schrader*, 22 F.3d at 296, 30 USPQ2d at 1460. To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application in the technological arts is either disclosed in the specification or would have been known to a skilled artisan (discussed in i) below), or (B) be limited to a practical application within the technological arts (discussed in ii) below). See *Diamond v. Diehr*, 450 U.S. at 183-84, 209 USPQ at 6 (quoting *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1877)) ("A [statutory] process is a mode of treatment of certain materials to produce a

given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing.... The process requires that certain things should be done with certain substances, and in a certain order; but the tools to be used in doing this may be of secondary consequence.”). See also *Alappat*, 33 F.3d at 1543, 31 USPQ2d at 1556-57 (quoting *Diamond v. Diehr*, 450 U.S. at 192, 209 USPQ at 10). See also *id.* at 1569, 31 USPQ2d at 1578-79 (Newman, J., concurring) (“unpatentability of the principle does not defeat patentability of its practical applications”) (citing *O ’Reilly v. Morse*, 56 U.S. (15 How.) at 114-19). If a physical transformation occurs outside the computer, a disclosure that permits a skilled artisan to practice the claimed invention, i.e., to put it to a practical use, is sufficient. On the other hand, it is necessary for the claimed invention taken as a whole to produce a practical application if there is only a transformation of signals or data inside a computer or if a process merely manipulates concepts or converts one set of numbers into another.

14. The claims merely recite forming subsets of abstract numbers.

15. Furthermore, claims 11-13 are also rejected under 35 U.S.C. 101 because **the claims recite a *computer program product***. It should be noted that code (i.e., a computer software program) does not do anything per se. Instead, it is the code stored on a computer that, *when executed*, instructs the computer to perform various functions. The following claim is a generic example of a proper computer program product claim:

A computer program product embodied on a computer-readable medium and comprising code that, when executed, causes a computer to perform the following:

Function A

Art Unit: 2128

Function B

Function C, etc...

**Claim Rejections - 35 USC § 112**

16. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

17. Claim 2, 5, 9, 12, 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims recite "and/or". The meaning is unknown.

18. Regarding claim 2, the phrase "or the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

19. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the steps required for the simulation of the variational elements. The claims only recite generating and using random numbers in the simulation. This is true for all Monte Carlo simulations. There are no recited steps pertaining to the actual simulation.

**Claim Rejections - 35 USC § 102**

20. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:



Art Unit: 2128

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

21. Claims 1-16 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by NtRand (10/7/1999).

22. Claims 1-16 are also rejected under 35 U.S.C. 102(b) based upon a public use or sale of the invention (NtRand versions 1.00, 1.11, 1.17).

23. It is noted that the NtRand is freeware (Applicant's website (10/7/1999)).

24. An issue of public use or on sale activity has been raised in this application. In order for the examiner to properly consider patentability of the claimed invention under 35 U.S.C. 102(b), additional information regarding this issue is required as follows:

NtRand including versions 1.00, 1.11, 1.17. Applicant is reminded that failure to fully reply to this requirement for information will result in a holding of abandonment.

25. Specifically, NtRand discloses

1. A simulation method for simulating assets variation having variation elements of dimensional number at least over 10.sup.2, comprising:

a pseudo random number generation step of generating pseudo random numbers, having a period over a product of a dimensional number of assets variation elements and the number of times to perform simulation necessary for convergence of simulation results within a predetermined error, and having uniform distribution in respective said variation elements, by a computer (pp. 1-2 "Outline and features"; pg. 10 "random number generation");

a pseudo random number adjustment step of adjusting said pseudo random numbers generated at said pseudo random number generation step such that at least first moment and second moment of said variation elements match input data, by the computer (pg.

Art Unit: 2128

2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20); and

a simulation step of simulating variation of assets, by the computer, with said pseudo random numbers adjusted at said pseudo random number adjustment step, as values of said assets variation elements (pg. 1, "outline").

2. The simulation method according to claim 1, wherein a mean value, as the first moment of said variation elements, represents an assets earning rate, a growth rate of macro economic element, an expectation growth rate of business results unique to an independent company or debtor, or the like (pg. 1, "outline"), and

wherein a standard deviation value, as the second moment of said variation elements, represents a variability rate of assets, a variability rate of macro economic element, a variation factor unique to independent company or debtor, or the like (pg. 1, "outline").

3. The simulation method according to claim 1, wherein at said pseudo random number adjustment step, said pseudo random numbers are adjusted such that at least a part of a third or higher moment matches the input data (pg. 2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20).

4. The simulation method according to claim 1, wherein at said pseudo random number adjustment step, match between moments includes cancellation of moment (pg. 2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20).

5. The simulation method according to claim 1, wherein at said pseudo random number adjustment step, adjustment of said pseudo random numbers includes antithetic variant method and/or quadratic resampling method (pg. 2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20).

6. The simulation method according to claim 1, wherein said simulation is performed by the Monte Carlo method (pg. 2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20).

Art Unit: 2128

7. A simulation system for simulating assets variation having variation elements of dimensional number at least over  $10.\text{sup.}2$ , comprising:

pseudo random number generation means, using a computer, for generating pseudo random numbers, having a period over a product of a dimensional number of assets variation elements and the number of times to perform simulation necessary for convergence of simulation results within a predetermined error, and using uniform distribution in respective said variation elements (pp. 1-2 "Outline and features"; pg. 10 "random number generation");

pseudo random number adjustment mean, using a computer, for adjusting said pseudo random numbers generated by said pseudo random number generation means such that at least first moment and second moment of said variation elements match input data (pg. 2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20); and

simulation means, using a computer, for simulating variation of assets with said pseudo random numbers adjusted by said pseudo random number adjustment means, as values of said assets variation elements (pg. 1, "outline").

8. The simulation system according to claim 7, wherein said pseudo random number adjustment means controls said pseudo random numbers such that at least a part of higher moment equal to or higher than a third moment matches the input data (pg. 2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20).

9. The simulation system according to claim 7, wherein said pseudo random number adjustment means performs moment matching including antithetic variant method and/or quadratic resampling method (pg. 2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20).

10. The simulation method according to claim 7, wherein said simulation is performed by the Monte Carlo method (pg. 2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20).

11. A computer-readable storage medium holding a program for simulating assets variation having variation elements of dimensional number at least over  $10.\text{sup.}2$ , said program comprising:

Art Unit: 2128

a first program module for generating pseudo random numbers, having a period over a product of a dimensional number of assets variation elements and the number of times to perform simulation necessary for convergence of simulation results within a predetermined error, and having uniform distribution in respective said variation elements, by a computer (pp. 1-2 "Outline and features"; pg. 10 "random number generation");

a second program module for adjusting said pseudo random numbers generated by said first program module such that at least first moment and second moment of said variation elements match input data, by the computer (pg. 2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20); and

a third program module for simulating variation of assets by the computer, with said pseudo random numbers adjusted by said second program module, as values of said assets variation elements (pg. 1, "outline"; pg. 2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20).

12. The storage medium according to claim 11, wherein said second program module including a program for performing antithetic variant method and/or quadratic resampling method (pg. 2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20).

13. The storage medium according to claim 11, wherein said simulation is performed by the Monte Carlo method (pg. 2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20).

14. A pseudo random number generation method for generating pseudo random numbers used in the Monte Carlo method for simulating assets variation having variation elements of dimensional number at least over  $10.\sup{.2}$ , comprising:

a pseudo random number generation step of generating pseudo random numbers, having a period over a product of a dimensional number of assets variation elements and the number of times to perform simulation necessary for convergence of simulation results within a predetermined error, and having uniform distribution in respective said variation elements, by a computer (pp. 1-2 "Outline and features"; pg. 10 "random number generation"); and

Art Unit: 2128

a pseudo random number adjustment step of adjusting said pseudo random numbers generated at said pseudo random number generation step such that at least first moment and second moment of said variation elements match input data, by the computer (pg. 2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20).

15. The pseudo random number generation method according to claim 14, wherein at said pseudo random number adjustment step, said pseudo random numbers are adjusted such that at least a part of a third or higher moment matches the input data (pg. 2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20).

16. The pseudo random number generation method according to claim 14, wherein at said pseudo random number adjustment step, adjustment of said pseudo random numbers includes antithetic variant method and/or quadratic resampling method (pg. 2, top; pp. 14-20 "enhancement of Monte Carlo by moments matching" - particularly see notes 6-7 on pg. 20).

### **Conclusion**

26. The prior art made of record is not relied upon because it is cumulative to the applied art, and is considered pertinent to applicant's disclosure. See form 892.

**27. Any inquiry concerning this communication or earlier communications from the examiner should be:**

directed to: Dr. Hugh Jones telephone number (571) 272-3781,

Monday-Thursday 0830 to 0700 ET,

**or**

the examiner's supervisor, Kamini Shah, telephone number (571) 272-2279.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, telephone number (703) 305-3900.

**mailed to:**

Art Unit: 2128

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

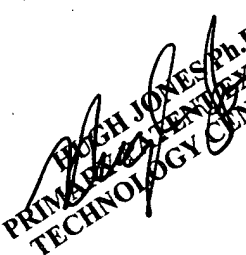
(703) 308-9051 (for formal communications intended for entry)

**or** (703) 308-1396 (for informal or draft communications, please label *PROPOSED* or *DRAFT*).

Dr. Hugh Jones

Primary Patent Examiner

March 13, 2006

  
HUGH JONES Ph.D.  
PRIMARY PATENT EXAMINER  
TECHNOLOGY CENTER 2100